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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,313	03/29/2001	Nagayuki Takao	0152-0555P	1864
2292	7590	08/19/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			SHOSHO, CALLIE E	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/820,313

Applicant(s)

TAKAO ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8, 9, 13-15 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8, 9, 13-15 and 17-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

#### **Continued Examination Under 37 CFR 1.114**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/4/04 has been entered.

#### **Claim Rejections - 35 USC § 112**

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-4, 8-9, 13-15, and 17-22 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for organic solvent that is small in polarity and has electrical resistivity of not lower than  $10^9 \Omega \text{ cm}$ , does not reasonably provide enablement for any type of organic solvent. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

Case law holds that applicant's specification must be "commensurately enabling [regarding the scope of the claims]" *Ex Parte Kung*, 17 USPQ2d 1545, 1547 (Bd. Pat.

App. Inter. 1990). Otherwise **undue experimentation** would be involved in determining how to practice and use applicant's invention. Although undue experimentation is not mentioned in the statute, enablement under 35 USC 112, first paragraph requires that the specification teach one of ordinary skill to make and use the invention without excessive experimentation. *Hybritech v. Monoclonal Antibodies Inc.*, 802 F.2d at 1367, 1384, 231 USPQ 81, 94 (Fed.Cir. 1986), *cert. den'd*, 107 S.Ct. 1606 (1987) and *Atlas Powder*, 705 F.2d at 1576, 224 USPQ at 413. The test for undue experimentation as to whether or not all compounds within the scope of claims 1-4, 8-9, 13-15, and 17-22 can be used as claimed and whether claims 1-4, 8-9, 13-15, and 17-22 meet the test is stated in *Ex parte Forman*, 230 USPQ 546, 547 (Bd. Pat. App. Inter. 1986) and *In re Wands*, 8 USPQ2d 1400, 1404 (Fed.cir. 1988). Upon applying this test to claims 1-4, 8-9, 13-15, and 17-22, it is believed that undue experimentation **would** be required because:

(a) *The quantity of experimentation necessary* is **great** since claims 1-4, 8-9, 13-15, and 17-22 read on any type of organic solvent including polar solvents that have electrical resistivity of less than  $10^9 \Omega \text{ cm}$ .

(b) There is **no direction or guidance presented** for ink that utilizes any type of organic solvent including polar solvents that have electrical resistivity of less than  $10^9 \Omega \text{ cm}$ .

(c) There is an **absence of working examples** for ink that utilizes any type of organic solvent including polar solvents that have electrical resistivity of less than  $10^9 \Omega \text{ cm}$ .

In light of the above factors, it is seen that undue experimentation would be necessary to make and use the invention of claims 1-4, 8-9, 13-15, and 17-22.

**Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 8-9, 13-15, and 18-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Ikeda et al. (U.S. 5,952,429).

Ikeda et al. disclose ink jet ink comprising organic solvent such as hexane, toluene, xylene, etc., colorant which is carbon black attached to silicone graft copolymer, and additives such as viscosity modifier, surface tension modifier, pH adjustor, and wetting agent. The polymerizable monomers include (meth)acrylic acid and hydroxyalkyl (meth)acrylamide. The carbon black has particle size of 0.0005 – 0.5  $\mu\text{m}$  while the colorant has particle size of 0.001-0.5  $\mu\text{m}$ . Thus, it is clear that the particle size of the silicone graft copolymer overlaps that presently claimed. The molecular weight of the silicone graft copolymer is 5000-100,000 while the molecular weight of the graft portion is 5,000-50,000. The ratio of silicone graft copolymer to carbon black present in the colorant is 1-1000:100. The ink comprises 100 parts solvent per 100 parts carbon black (col.12, lines 23-26, col.16, lines 53-60, col.20, lines 41-49, col.22, lines 24-28 and 33-38, col.23, lines 56-63, col.24, lines 28-37, col.30, lines 8-9 and 32-67, col.34, lines 17-

34, col.42, line 64-col.43, line 28, col.44, lines 7-12, col.48, lines 31-45, col.54, lines 38-46, and col.55, lines 25-29 and 60-65). Although there is no explicit disclosure of the viscosity of the ink, given that the ink is used in ink jet printing as presently claimed and given that the ink contains the same ingredients as presently claimed, it is clear that the ink would inherently possess viscosity as presently claimed.

It is noted that there is no disclosure in Ikeda et al. that the adsorption of the silicone graft copolymer by the pigment is produced by the three steps required in present claim 1. Rather, Ikeda et al. disclose mixing the carbon black with the silicone graft copolymer at given temperature for certain amount of time. However, “even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself”. See MPEP 2113.

The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Further, “although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product.” *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983).

Therefore, absent evidence of criticality regarding the presently claimed process for adsorption of the silicone graft copolymer by the pigment, given that Ikeda et al. disclose same “product” as presently claimed, namely, silicone graft polymer adsorbed

by pigment, it is clear that Ikeda et al. meet the requirements of present claim 1 regarding the process for adsorbing the silicone graft polymer to the pigment.

In light of the above, it is clear that Ikeda et al. anticipate the present claims.

**Claim Rejections - 35 USC § 103**

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-2, 4, 7-9, 13-15, 17-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsubuko et al. (U.S. 5,952,048) in view of Ryntz et al. (U.S. 4,673,718).

Tsubuko et al. disclose ink jet ink comprising pigment including carbon black, organic solvent such as dimethylpolysiloxane, and silicone resin wherein the resin is adsorbed to the pigment. The viscosity of the ink is less than 10 cP and the ink is used in an ink jet printer. It is disclosed that the particle size of the pigment and silicone resin combined is 0.03-5  $\mu\text{m}$  so that it is clear that the particle size of the silicone resin and pigment each clearly overlaps that presently claimed (col.3, lines 32-39, 49-50, 54-55, and 57-58, col.5, lines 30-32, col.6, lines 10-20, col.16, lines 10-33, and col.25, lines 21-23).

The difference between Tsubuko et al. and the present claimed invention is the requirement in the claims of silicone graft polymer and process for adsorbing the polymer to the pigment.

Tsubuko et al. disclose the use of surface treated pigment wherein silicone resin is adsorbed to the pigment, however, there is no disclosure that the silicone resin is silicone graft polymer as required in the present claims.

Ryntz et al. disclose hydroxy functional polysiloxane graft copolymer which is crosslinkable by hydroxy reactive crosslinking agent. The graft copolymer has number



average molecular weight of 1,000-15,000. The graft portion, i.e. silicone portion, has molecular weight of 1,000-12,000. It is further disclosed that the graft copolymer contains polyester crosslinkages (col.1, line 65-col.2, line 6, col.3, lines 14-19, col.5, lines 55-60, and col.6, lines 43-48).

The motivation for using such silicone graft copolymer is to form flexible cured coating over a variety of substrates wherein the coating has excellent weatherability (col.2, lines 1-3 and 60-61).

It is noted that there is no disclosure in either Tsubuko et al. or Ryntz et al. that the adsorption of the silicone graft polymer by the pigment is produced by the three steps required in present claim 1. Rather, Tsubuko et al. disclose mixing and kneading dispersion system comprising pigment and reactive silicone in non-aqueous solvent (col.4, lines 1-5 and col.6, lines 45-58). However, “even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself”. See MPEP 2113. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) . Further, “although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product.” *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983).

Therefore, absent evidence of criticality regarding the presently claimed process for adsorption of the silicone graft copolymer by the pigment, given that Tsubuko et al. in combination with Ryntz et al. disclose same "product" as presently claimed, namely, silicone graft polymer adsorbed by pigment, it is clear that Tsubuko et al. in combination with Ryntz et al. meet the requirements of present claim 1 regarding the process for adsorbing the silicone graft polymer to the pigment.

In light of the motivation for using silicone graft copolymer disclosed by Ryntz et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such copolymer as the silicone polymer in Tsubuko et al. in order to produce an ink with good flexibility and weatherability, and thereby arrive at the claimed invention.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsubuko et al. in view of Ryntz et al. as applied to claims 1-2, 4, 7-9, 13-15, 17-20, and 22 above, and further in view of Zahrobsky et al. (U.S. 5,936,027).

The difference between Tsubuko et al. in view of Ryntz et al. and the present claimed invention is the requirement in the claims of additives.

Zahrobsky et al., which is drawn to non-aqueous inks, disclose the use of additives to enhance the adhesion of the ink to substrate (i.e. binder) and to control wetting (col.4, lines 54-61).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to include additives in the ink of Tsubuko et al. in order to enhance ink properties, and thereby arrive at the claimed invention.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takao et al. (U.S. 2003/0212198) disclose method of producing dispersion that results in adsorption of silicone graft polymer to pigment, however, given the effective filing date of the reference and that the inventive entity of the reference is identical to that of the present application, Takao et al. is not applicable against the present claims under any subsection of 35 USC 102.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS  
8/13/04